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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,746	12/05/2001	Friedrich-Karl Bruder	Mo-6840/LeA 33,726	6704

157 7590 07/22/2005

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1756	

DATE MAILED: 07/22/2005

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/009,746
Filing Date: December 05, 2001
Appellant(s): BRUDER ET AL.

Diderico van Eyl (38,641)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed June 2, 2005.

(1) ***Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

The examiner notes that correspondence is with Bayer Corporation and no change of address is of record.

(2) ***Related Appeals and Interferences***

A statement that there are *no related appeals or interferences* which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) ***Status of Claims***

The statement of the status of the claims contained in the brief is correct.

(4) ***Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on December 02, 2004 has been entered. This amendment included arguments and a declaration, but did not amend the claims.

(5) ***Summary of Invention***

The summary of invention contained in the brief is correct.

(6) ***Issues***

The appellant's statement of the issues in the brief is correct.

(7) ***Grouping of Claims***

The brief includes on page 4, in the first three lines, a statement that all claims stand or fall together.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,424,171	Yanagisawa et al.	06/1995
4,111,650	Lacroix et al.	09/1978
4,379,710	Crounse	04/1983
4,069,064	Nett et al.	01/1978
63-307987	Miyazaki et al.	12/1988
01-133790	Miyazaki et al.	05/1989
0519395	Kovacs et al.	12/1992

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A) Claims 2,8-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa et al. '171.

Yanagisawa et al. '171 teaches in example 1, the application of a silicon phthalocyanine dye having four sulfoamido groups bound to the phenyl rings of the phthalocyanine moiety in a methanol solution to a polycarbonate substrate to a thickness of 0.2 microns, followed by a gold reflective film and a UV cured resins protective layer and its use as an optical recording medium. (5/7-58). The use of seven other metal centers, including Cu is disclosed as desirable. (3/67-68) The substituents may be between 0 and 4 (3/64-66). Useful reflective layers are disclosed. (4/10-

18). Useful solvents for the recording film, including tetrafluoropropanol, methanol, diacetone alcohol, 2-ethoxyethanol (CELLOSOLVE) 2-methoxyethanol, and isopherone are disclosed (4/5-9)

It would have been obvious to one skilled in the art to modify the example of Yanagisawa et al. '171 to use a copper metal center, rather than the Si metal center with the axial hydroxyl ligands with a reasonable expectation of achieving comparable results based upon the disclosure of equivalence of the use of the seven metal centers. Further it would have been obvious to use mixtures of the solvents disclosed as useful with these compounds to provide a good coating solution for the recording layer of the optical recording medium.

Based upon the location of the substituents in the formula and their association (x and y combined add to between two and four), the examiner interprets the coverage to require the recited substitutents to be bound to the phthalocyanine moiety and not directly to the central metal (copper).

B) Claims 2,8-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki et al. JP 63-307987, in view of Kovacs et al. EP 0519395.

Miyazaki et al. JP 63-307987 teaches optical recording media embraced by the formula except for the particular metal centers in examples 1,8,13 and 15. These are spin coated from Chloroform solutions onto a polymeric substrate.

Kovacs et al. EP 0519395 teaches various central metals, metal oxides and metal chlorides, including Cu. (3/55-57). The use of various solvents is disclosed. (12/29-36). The use of binders is disclosed. (12/37)

It would have been obvious to one skilled in the art to modify the example of Miyazaki et al. JP 63-307987 to use a copper metal center, rather than the metal centers of examples 1,8,13 and 15 with a reasonable expectation of achieving comparable results based upon the disclosure of equivalence by Kovacs et al. EP 0519395 and the direction to use metals in general by Miyazaki et al. JP 63-307987. Further it would have been obvious to use mixtures of the solvents disclosed as useful with these phthalocyanine dyes to provide a good coating solution for the recording layer or the optical recording medium.

C) Claims 2 and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa et al. '171 as applied to claims cited above, and further in view of Sasakawa et al. '094 and Nett et al. '064.

Sasakawa et al. '094 teaches the use of mixtures of solvents including hexane, cyclohexane, ethylcyclohexane, methyl ethyl ketone, ethanol, propanol, ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, benzyl alcohol, methylene chloride and tetrachloroethane (4/17-6/29). The addition of binders, such as nitrocellulose, and ethyl cellulose resins to solutions for forming phthalocyanine based optical recording layers is disclosed as increasing the smoothness of the layer formed and reducing pin holing. (6/61-7/11)

Nett et al. '064 teach phthalocyanine compositions, which are useful in surface finishes or priting inks and are stabilized against crystallization. (1/6-10 and 2/42-54). Useful solvents including methanol, ethanol, propanol, diacetone alcohol, monoalkyl ethers of ethylene glycols, methyl ethyl ketone and mixtures thereof. (7/10-32) The use of binders including cellulose esters, cellulose ethers and other resins is disclosed. (7/32-48). Copper phthalocyanine dyes

having four sulfoamido groups bound to the phenyl rings of the phthalocyanine moiety are examplified in table 4, including examples 5,11,12,14,17 and 19-23.

In addition to the basis provided above, the examiner cites Sasakawa et al. '094 who clearly points to the use of solvent mixtures for phthalocyanine dye solutions used to cast optical recording media layers and Nett et al. '064 which teaches copper phthalocyanine dyes having four sulfoamido groups bound to the phenyl rings of the phthalocyanine moiety are known to be compatible with various binders, such as cellulosic polymers and that these are soluble in various solvents including those disclosed by Sasakawa et al. '094 which further renders the modification of the examples of Yanagisawa et al. '171 by the use of mixed solvents obvious with a reasonable expectation of realizing increased solubility. In addition to the response above, the examiner notes that compatibility with other components in the recording layer, such as cellulosic binders and solvent taught by Sasakawa et al. '094, is an important consideration and one skilled in the art would look to compounds embraced by the teachings of Yanagisawa et al. '171 which are known to have this compatibility by looking at the data of Nett et al. '064. In this case, the Nett et al. '064 reference is almost used as a reference text to establish the properties of the compounds. The rejection stands.

D) Claims 2 and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa et al. '171, in view of Sasakawa et al. '094 and Nett et al. '064 as applied to claims cited above, and further in view of Lacroix et al. '650, Crounse '710 and Miyazaki et al. JP 01-133790.

Lacroix et al. '650 teaches phthalocyanine compounds embraced by the claims, but discloses them only for use as dyes, particularly for cellulosic materials such as paper.

Crounse '710 teaches phthalocyanine compounds embraced by the claims, but discloses them only for use as dyes, particularly for cellulosic materials.

Miyazaki et al. JP 01-133790 describes various substitutents for phthalocyanine compounds which include $-SO_3H$ and $-SO_2NR_4R_5$, (which embraces the exemplified - $SO_2NH(CH_2)_3N(C_2H_5)_2$ of compound (f) on page 6, which are useful in optical recording media. (see abstract)

It would have been obvious to one skilled in the art to modify the invention of Yanagisawa et al. '171 as combined with Sasakawa et al. '094 and Nett et al. '064 by using the phthalocyanine dyes taught by Lacroix et al. '650 and Crounse '710 with a reasonable expectation of success based upon their compatibility with cellulosic binder materials and the teachings by Miyazaki et al. JP 01-133790 that $-SO_3H$ and $-SO_2NH(CH_2)_3N(C_2H_5)_2$ substituted phthalocyanines are useful in optical recording media.

The examiner responds to the applicants arguments that there is no motivation to combine by pointing the compatibility issues raised above. The rejection stands.

(11) Response to Argument

The applicant has previously submitted two declarations. The first on March 02, 2004, executed on February 09, 2004 by Josef W. STAWITZ and addressed previously in the final office action of June 02, 2004 and a copy of which was attached to the appeal brief. **The second**

submitted on December 02, 2004, which is unexecuted, but was addressed in the advisory action of December 15, 2004. The latter declaration was addressed as if it had been executed. In response to the revisitation of these declarations, the examiner expands upon the previous response. With respect to the declarations, assuming arguendo that the latter is executed in the near future and that these do evidence relative to the $Si(OH)_2$ analog, increased solubility in amounts of more than 5 wt% in tetrafluoropropanol and more than 10 wt% in benzyl alcohol for the copper compounds of the invention irrespective of the presence of the SO_3H moiety. **It is unclear what unobvious benefit flows from this for the optical recording media of claim 8, where the solvent has been evaporated and no minimum amount of dye is specified. The increased solubility of the dye would allow more to be applied in a single coating, but the claims embrace coating weight percentages of the dye less than the maximum solubility. The applicant on page 2 of the instant specification at lines 14 to 19 describe the increased light stability of the dye, favorable signal to noise and application to the substrate without damaging the substrate, none of which are necessarily affected by the increased solubility of the dye.** Further, the examiner points out that the dye of Yanagisawa et al. is coated from a 6 wt% solution in methanol. Claim 9 merely specifies a solvent and is not limited to tetrafluoropropanol or benzyl alcohol and lacks any minimum weight percent recitation. Claims 12 and 13 describe mixed solvent systems. Therefore the examiner has properly held the declarations to be unpersuasive as the benefit of increased solubility asserted is either irrelevant to the issue at hand, in the case of the performance of the optical recording medium, or not commensurate in scope with the coverage sought, in the case of the coating processes which are not limited to particular solvents or weight contents of dye.

A) The applicant argues that the phthalocyanine compounds of Yanagisawa et al. are different due to the presence of the axial ligands bound directly to the metal in the formula and so the substitution of Cu for Si as suggested by the examiner would result in a similar axially substituted compound, but points out that the coordination to Cu does not allow the presence of axial ligands in the amendments of February 23, 2004 and December 6, 2004. **The examiner partially agrees noting that there are only two bonds between the nitrogens of the phthalocyanine and the central metal and in the case of silicon the central metal would be Si^{+4} and in the case of copper the central metal would be Cu^{+2} and so no axial ligands would be required to form the neutral compound when copper is the central metal. As the valence of silicon is +4, it requires two hydroxyl (HO^-) axial moieties in addition to the phthalocyanine moiety to neutralize the silicon. Therefore to one of ordinary skill in the art the Cu^{+2} replaces $[Si(OH)_2]^{+2}$. The chemistry of the central metal controls the number of coordination sites, not the formula of Yanagisawa et al. '171.** The position of the examiner is supported with respect to the similar compounds shown in Mayazaki et al. JP 63-307987 including compound (h) the $Si(OH)_2$ analog of the claimed copper compound, and compounds (d), the Mn analog and (o), the Pb analog. **Therefore the obviousness substitution of the Cu for Si metal center and its axial ligands would have been evident to one skilled in the art, who would have some basic knowledge of chemistry and the periodic table of the elements.**

The applicant has argued in the response of February 23, 2004 and December 6, 2004 that the dyes of the claims have significantly improved solubility over those of the prior art and has submitted declaration evidence to support this. Dr. Joseph-Walter STAWITZ has submitted

has declaration alleging evidence of unexpected results. The examiner holds that the showing is not commensurate in scope with the coverage sought. The examiner notes that the claims embrace x = 4 and y=0, which is more analogous to the prior art compound III. Clearly a group such as SO_3H, which is able to undergo dissociation would contribute to the dissolution of the compound in a polar solvent. The point of attachment is somewhat vague in the claim as well, which undercuts the applicant's arguments concerning ligands on the central metal. The examiner notes that the solvents are not specified in the majority of the claims either, and would require more data to be commensurate in scope with the broad coverage sought. The equivalence of the central metals in the examiner's position still stands and the examiner notes that the comparative data between dyes I and II seem to indicate that the substituents are more important than the central metal, which is different from the argued position of the applicant.

B) The arguments of the applicant is that Miyazaki et al. JP 63-307987 teaches structurally different dyes than those claimed. This ignore the fact that dyes exemplified in examples 1 (a, V=O) , 8 (h, $Si(OH)_2$),13 (m, Ti=O) and 15 (o, Pb) are analogs of the Cu phthalocyanine recited in the claims, where A is $(CH_2)_3$, Y=0 and X=4 and R^1, R^2 are both alkyl or liked to form morpholino. These exemplifications direct one skilled in the art toward those dyes most similar to those of the claimed invention, bearing in mind that the translation provided to the applicant on January 11, 2005 on page 4 defines M as a metal atom and that out of 15 examplified dyes, 4 (~27%) are analogs of the claimed Cu phthalocyanines. As discussed above, the criticality of the metal center with respect to any unobvious results related to, and coextensive with, the claimed inventions has not been established by the declaration evidence.

The equivalence of various metal centers in phthalocyanines used in optical recording media is established by the teachings of Kovacs et al. and congruent to the general teaching of metals centers, metal oxide and metal chlorides by Miyazaki et al. JP 63-307987. The comparison in the declaration is with compounds in the secondary reference (Kovacs) not those of the primary reference and there is no discussion as why these represent a better comparison that with the closest prior art. The discussion above concerning the declarations is also relied upon here without repeating it.

In addition to the basis provided above, the examiner notes that example 1 (V=O), 13 (Ti=O) and 15 (Pb) do not have hydroxyl moieties and therefore are not addressed by the data of the applicant. The examiner particularly points to the use of Pb in example 15, which lacks ligands on the central metal. The examiner cites Kovacs et al. to support the equivalence of the central metal and does not suggest the use of the phthalocyanine compounds of Kovacs et al. in place of those of Miyazaki et al. JP 63-307987. The comparison should therefore be with Miyazaki et al. JP 63-307987, not Kovacs et al. EP 0519395. The rejection stands.

C) With respect to the arguments of the applicant the use of mixed solvent systems, where the solvents have different polarity, to one of ordinary skill in the art clearly increases the dissolution capability of the solvent system as discussed by Nee et al. '064 in terms of resistance to crystallization and further the result of the binder is to increase the quality of the recording film cast by reducing pinholes and the like as discussed by Sasakawa et al. '094 as the phthalocyanines used in the process of forming an optical recording medium of Yanagisawa et al. are dissolved in a solvent and then spin coated on the substrate, the solubility realized by

using mixed solvent systems would be desirable and recognized within the art by those skilled in the art.

D) Contrary to the position of the applicant, there is a reasonable motivation as the absorption of light by these dyes is described in the secondary references, which allows them to absorb the laser (light) and be written upon due to that absorption and further the use of cellulosic materials as binders for these, where the prior discloses these as suitable for dyeing cellulosics, provides a reasonable expectation of success based the demonstrated compatibility of the dye and cellulosics in the prior art of record.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Martin J Angebranndt
Primary Examiner
Art Unit 1756

July 18, 2005

Conferees

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